

CLAIMS

1. A virus vector comprising a virus structural protein fused with a ligand which specifically binds to a melanocyte-stimulating hormone (MSH) receptor.

2. The virus vector according to claim 1, wherein the virus structural protein is fused with a ligand which specifically binds to the melanocyte-stimulating hormone (MSH) receptor via a linker.

3. The virus vector according to claim 2, wherein the linker is an oligopeptide.

4. The virus vector according to claim 3, wherein the linker has the amino acid sequence represented by any one of SEQ ID NOs:25, 27, 29 and 31.

5. The virus vector according to any one of claims 1 to 4, wherein the virus structural protein is a protein which constructs the outer surface of the virus.

6. The virus vector according to any one of claims 1 to 5, wherein the ligand is a ligand selected from the group consisting of α -MSH, β -MSH, γ -MSH and derivatives of any one thereof.

7. The virus vector according to any one of claim 1 to 6, wherein the virus is selected from viruses belonging to any one of the group consisting of the family Adenoviridae, the family Retroviridae, the family Parvoviridae, the family Herpesviridae, the family Poxviridae, the family Papovaviridae, the family Hepadnaviridae, the family Togaviridae, the family Flaviviridae, the family Coronaviridae, the family Rhabdoviridae, the family Paramyxoviridae, the family Orthomyxoviridae, the family Bunyaviridae, the family Arenaviridae and the family Reoviridae.

8. The virus vector according to any one of claims 1 to 6, wherein the virus is a human adenovirus.

9. The virus vector according to any one of claims 1 to 8, wherein the virus contains an exogenous gene.

10. The virus vector according to claim 9, wherein the gene is a gene encoding an enzyme capable of converting a nontoxic prodrug into a drug having a cytotoxicity.

11. The virus vector according to claim 10, wherein the gene is a gene encoding a herpes simplex virus thymine kinase (HSV-tk) or a cytosine deaminase (CD).

12. The virus vector according to claim 9, wherein the gene is a gene encoding a molecule having a cytotoxic activity directly or indirectly.

13. The virus vector according to claim 12, wherein the gene is a gene encoding a cytokine, a cell growth factor or a cell growth inhibiting factor.

14. The virus vector according to claim 12, wherein the gene is a tumor repressor gene, a cell cycle regulator gene or a cell death regulator gene.

15. The virus vector according to claim 9, wherein the exogenous gene is a wild type or mutant gene of adenovirus E1A or E1B or a part of the gene.

16. A medicament comprising the virus vector according to any one of claims 1 to 15.

17. An antitumor agent comprising the virus vector according to any one of claims 1 to 15.

18. The antitumor agent according to 17, wherein the tumor is malignant melanoma.

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19. A diagnostic agent of a tumor, comprising the virus vector according to any one of claims 1 to 15.

20. The diagnostic agent according to claim 19, wherein the tumor is malignant melanoma.

21. A linker comprising the amino acid sequence represented by any one of SEQ ID NOs:25, 27, 29 and 31.

22. A DNA encoding the linker according to claim 21.

23. A DNA comprising the nucleotide sequence represented by any one of SEQ ID NOs:24, 26, 28 and 30.

24. A protein comprising the amino acid sequence represented by any one of SEQ ID NOs:32 to 39.

25. A DNA encoding the protein according to claim 24.

26. A DNA comprising the nucleotide sequence represented by any one of SEQ ID NOs:7, 13, 17, 18, 20, 21, 22 and 23.